POSTER CONTEST
LOCAL HEROES – YOUR HARDWORKING POLLINATORS

NACD/NACD Auxiliary
2015 Poster Contest

Ideas, Rules, Poster Ideas and Tips

Conserving Natural Resources for Our Future
National Association of Conservation Districts

The Power of Pollinators was created by a partnership between:

The Xerces Society for Invertebrate Conservation

The University of Wisconsin-Madison Center for Integrated Agricultural Systems, and

The Ohio State University Bee Lab and Pollinatarium

Funded in part by a grant from NIFA's North Central IPM Working Group

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION

- The importance of pollination
- Who are the pollinators?
- Threats to pollinators

Photo: Bruce Newhouse

One in Every Three Bites

The Food We Eat

Pollinators provide an ecosystem service that enables plants to produce fruits and seeds.

- 35% of crop production, worldwide
- Over $18 to $27 billion value of crops in U.S. ($217 billion worldwide)

Photo: USDA-ARS/Peggy Greb

Annual Value of Insect Pollinated Crops

- Alfalfa (seed and forage) = Over $7 billion
- Apple = Over $1.5 billion
- Almond = Over $1.1 billion
- Berries = Over $2.5 billion
- Canola, soybean, cotton

Photo: Sarah Greenleaf

Native Plants Need Pollinators

Photo: Denise Ellsworth

Wildlife Food Web

- Fruits and seeds are a major part of the diet of about 25% of birds, and many mammals.
- Pollinators are food for wildlife.

What is Pollination?

Photo: Curtis Young, The Ohio State University

The Transfer of Pollen from Anther to Stigma of the Same or Another Flower

- Self-pollination: transfer within a flower or flowers of the same plant
- Cross-pollination: transfer between plants

Photo: Denise Ellsworth

A Symbiotic Relationship

Photo: Denise Ellsworth

Who Are the Pollinators?

Main Group of Pollinators: Insects

Photos: Mace Vaughan, Bob Hammond, David Inouye, Bruce Newhouse

Bees: The Most Important Pollinators

- Bees actively collect and transport pollen
- Bees exhibit flower constancy
- Bees regularly forage in area around nest

Photo: Edward S. Ross

Honey Bees: Non-Native Pollinators

- Most crop pollination is done by the European honey bee.
- Many crops are reliant on this single pollinator, one that is experiencing many problems.

Photo: USDA-ARS/Scott Bauer

Honey Bees in Decline

Varroa mite

Fewer honey bees available

- 50% decline in managed hives since 1950
- Doubling of cropland requiring bee pollination
- 70-100% decline in feral colonies

Causes: Disease, pests, honey prices

Photo: USDA-ARS/Scott Bauer

Colony Collapse Disorder

- In 2006-7, about 25% of beekeeping operations in the U.S. lost an average of 45% of hives.
- Multiple factors impact honey bee health, including pests, pesticides, and habitat loss.

Photo: Mace Vaughan (Xerces)

Crop Pollination: Diversity is Important

- Important to diversify pollinators for production agriculture
- Important to strengthen habitat and pesticide protection for all bees (honey and native)

Photo: Bob Hammond, CSU Coop Ext

Native Bee Diversity

North America: 4,000+ species

Photo: Edward S. Ross

The Economic Value of Native Bees

Hundreds of species of native bees contribute significantly to crop pollination.

- $3 billion/year

Photos: USDA-ARS/Scott Bauer & Edward McCain

Native Bee Diversity in Agriculture

Contribution of native bees to crop pollination:

- 80+ bee species recorded visiting berry crops in New England
- 100+ species documented in WI cranberries
- 100+ species visiting apples in NY and PA
- 50+ species visiting tomato, sunflower, or watermelon in California

Photo: USDA-ARS

Native Bees as Pollinators

Native bees are efficient pollinators:

- Active earlier and later in the day
- Collect both pollen and nectar
- No rental fees
- Native bees can supplement honey bees if honey bees are hard to acquire.

Photo: Mace Vaughan

Blue Orchard Bee as Pollinator

- 250 to 750 females per acre compared to 1 to 2.5 hives of honey bees
- Make contact with anther and stigma on almost every visit
- Active at low light levels and low temperatures
  - 33+ hours foraging in 5 days
  - 15+ hours by honey bees

Buzz Pollination by Native Bees

Example: Cherry tomatoes

When native bees were present, the production of Sungold cherry tomatoes almost tripled.

Photos: Burpee; Mace Vaughan

Native Bees Keep Honey Bees Moving

Hybrid sunflower production:

When native bees were present, the seed set in hybrid sunflower fields more than doubled.

Photos: Sarah Greenleaf

Pollinators in Peril

Threats include:

Habitat loss

Pesticides

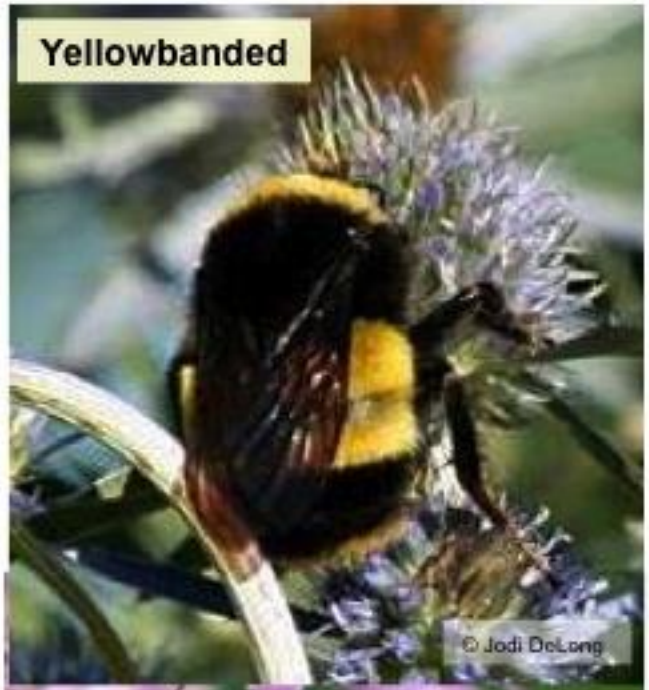
Pests

Climate change

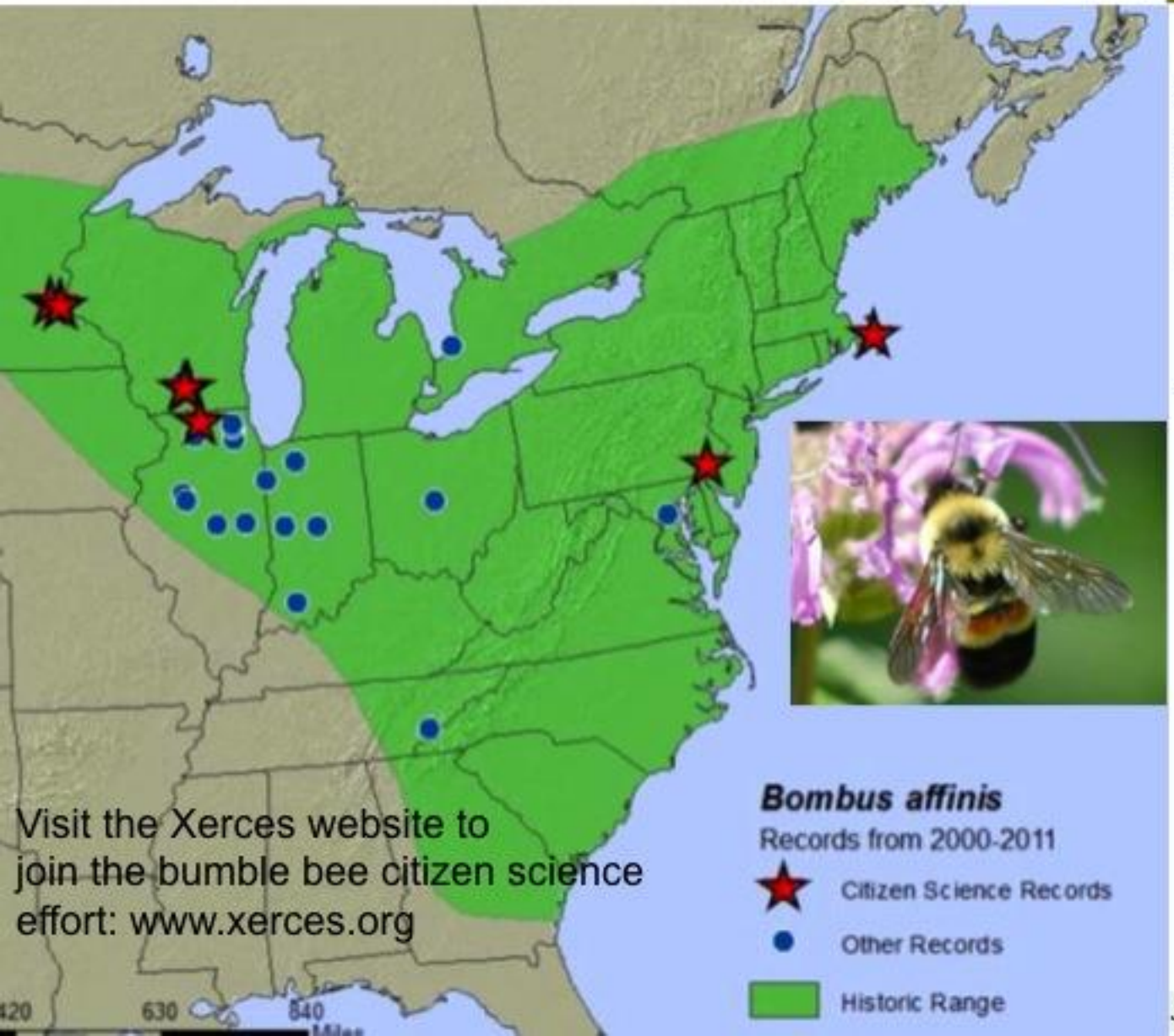
Invasive plants

Photo: Karina Weatherbee

Four Sister Species of Bumble Bees in Decline



On the Lookout:
Rusty Patched Bumble Bee



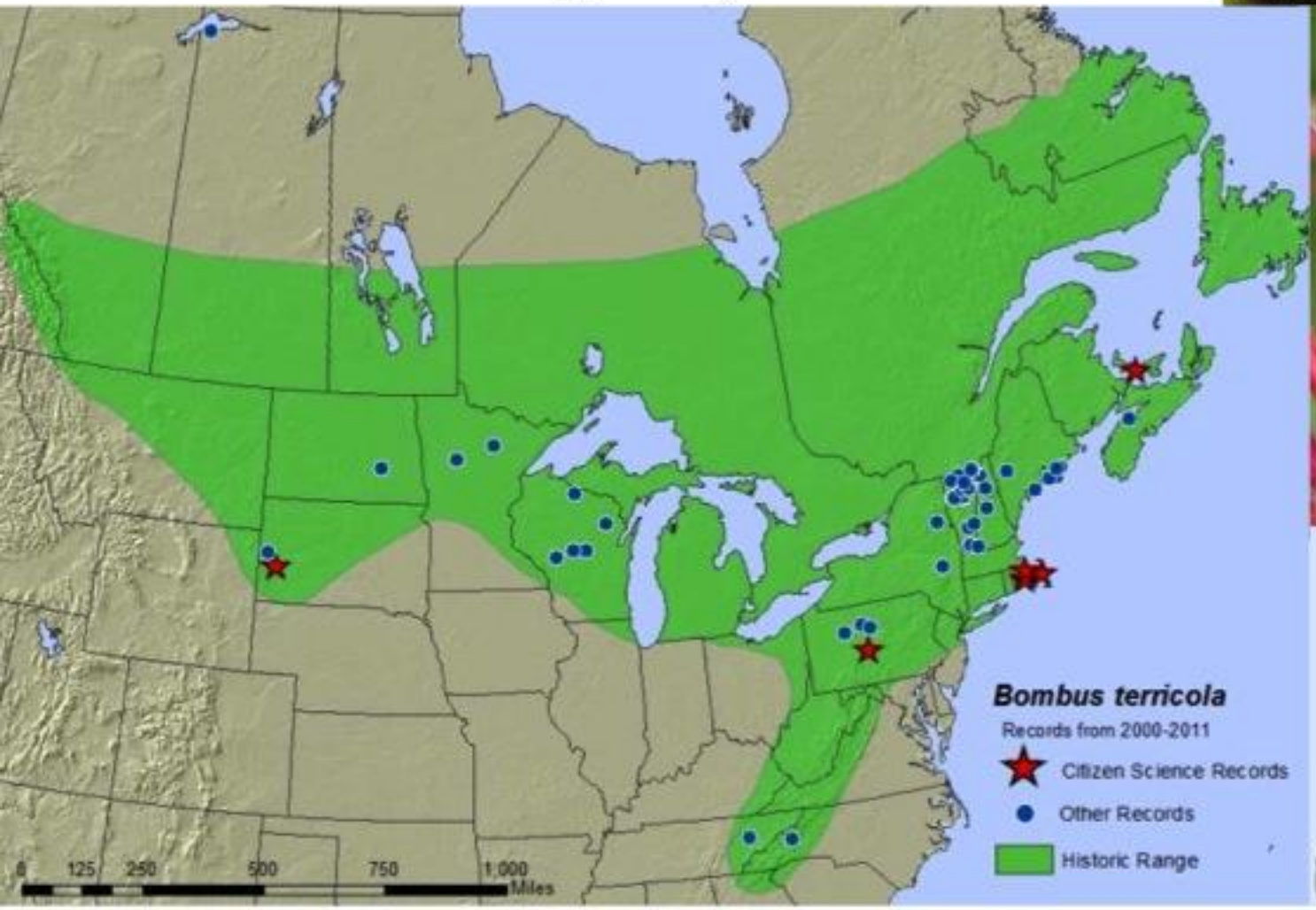
Visit the Xerces website to join the bumble bee citizen science effort: www.xerces.org

Bombus affinis was one of most common bumble bees in the Eastern U.S.

- Now gone from most of its historic range
- The decline may be caused by a pathogen introduced from commercially reared bumble bee colonies

Johanna James-Heinz and The Xerces Society

Bumble Bee
Citizen Monitoring Project



The yellow banded bumble bee has declined from many parts of its historic range in the past decade.

Xerces citizen monitors have contributed 7 confirmed records of this species.

Pollination and Crop Security

Even as bees decline, crop acreage requiring bee pollination grows.

- From 1961 to 2006 percent of global cropland requiring bee pollination rose from 18.2% to 34.9% (300% increase in total acreage)[1]
- 5,000 to 10,000 new acres of Wisconsin cranberries over the next decade
- 150,000 new acres of California almonds anticipated

Photo: Singeli Agnew

The Power of Pollinators was created by a partnership between:

The Xerces Society for Invertebrate Conservation

The University of Wisconsin-Madison Center for Integrated Agricultural Systems, and

The Ohio State University Bee Lab and Pollinatarium

Funded in part by a grant from NIFA's North Central IPM Working Group

THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION

Design your posters using some of these ideas

- Look around your community for ideas.

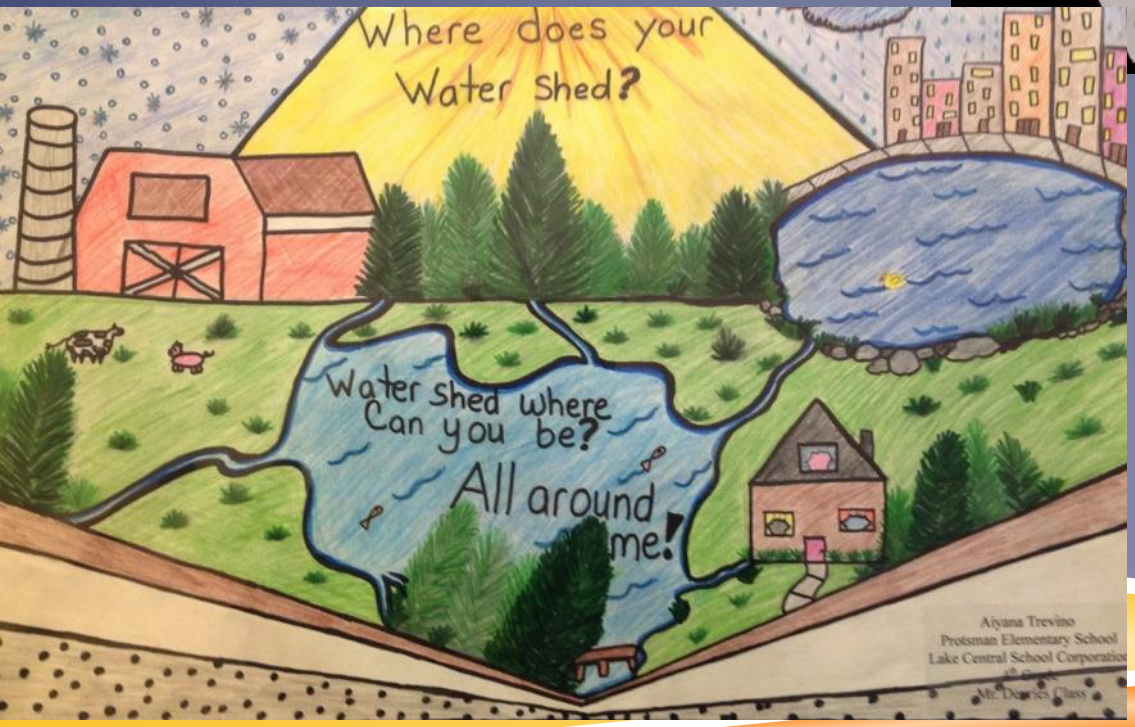
Discuss and share your information with others!

2015 CATEGORIES

- Grades K-1
- Grades 2-3
- Grades 4-6
- Grades 7-9
- Grades 10-12
- Some local and state contests have additional categories

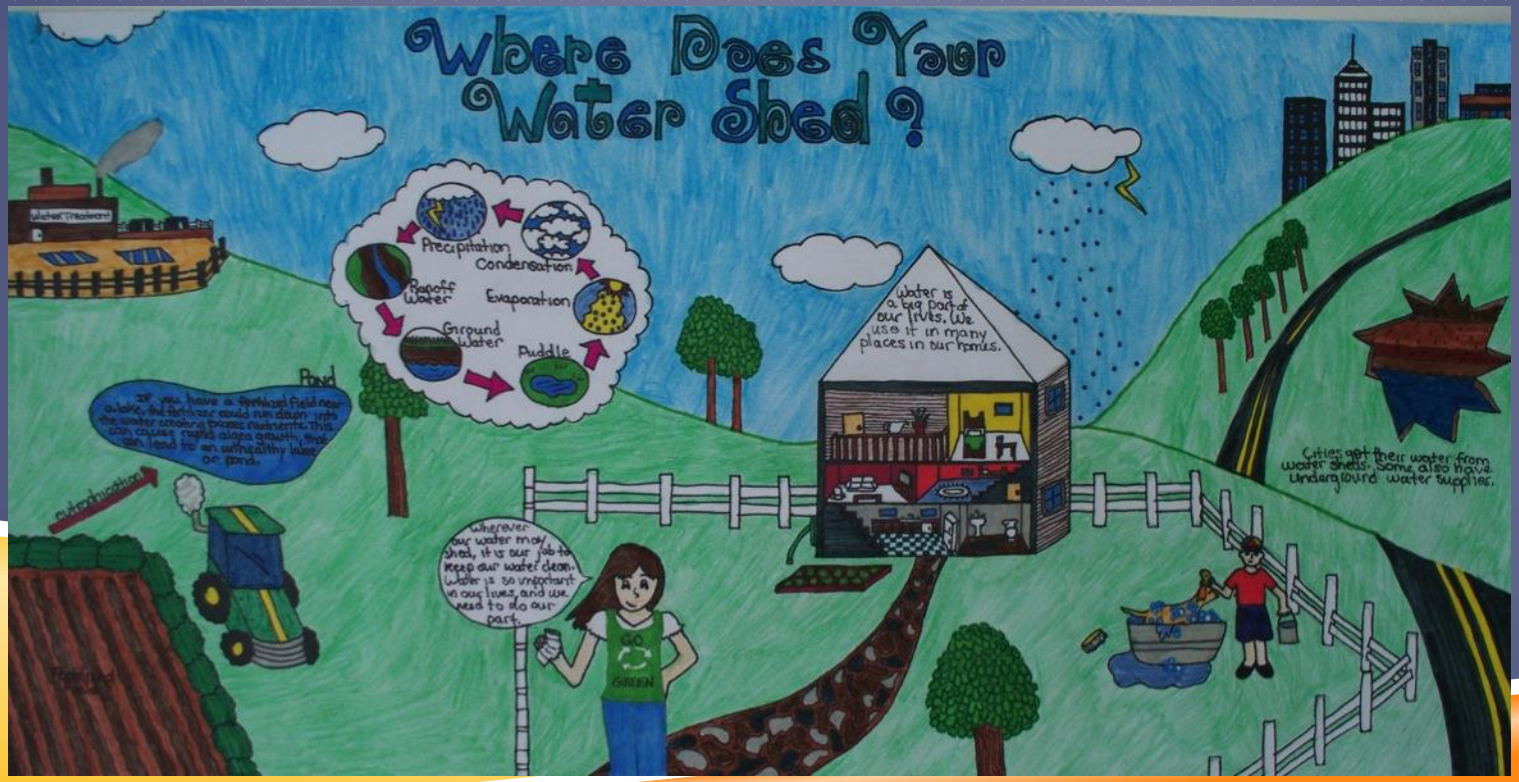
FOR YOUR LOCAL, AREA STATE WATER CONCERNS AND OR ADDITIONAL INFORMATION ABOUT YOUR DISTRICT

POSTER IDEAS



WHAT MAKES A GOOD POSTER?

- Attracts attention
- Is simple and clear
- Uses colors and white space to get and hold attention
- Letters are large enough to be easily read

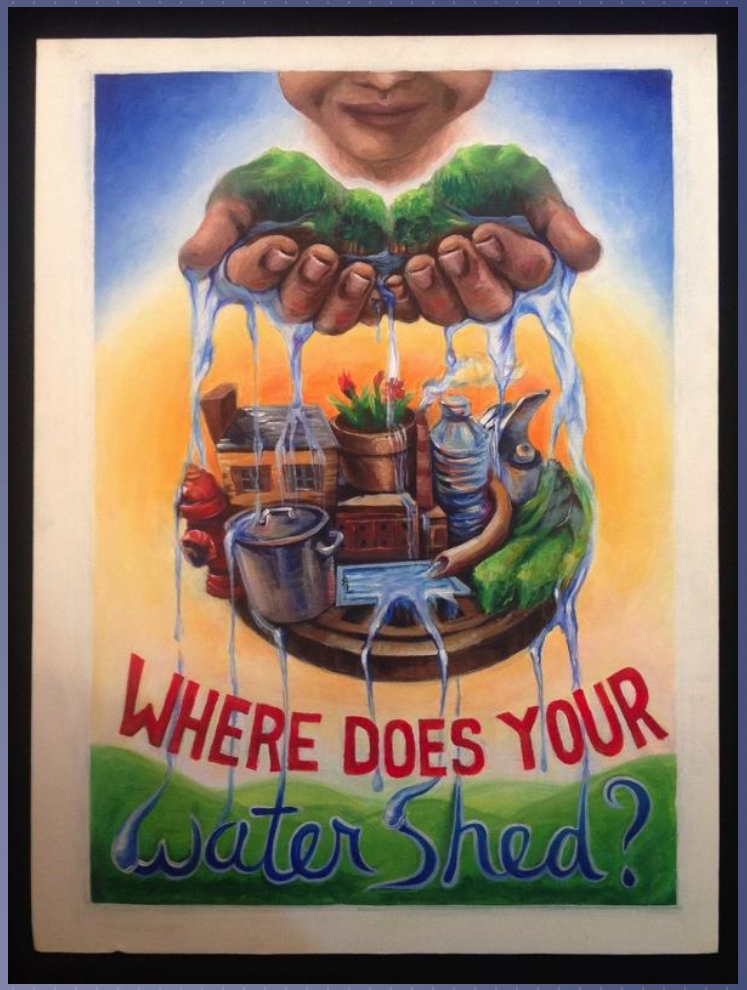


WHEN FORMING IDEAS FOR YOUR POSTER

- Research the topic of the theme
- Brainstorm ideas and make a list
- Use the theme as your title

Local Heroes

Your Hardworking Pollinators



TIPS TO REMEMBER

- Don't use too many words
- Use a combination of illustrations and words
- Be as neat as you can
- Blend colors when using crayons or colored pencils
- Depending on design leave white space on the poster
- Make sure the poster is balanced

TIPS TO REMEMBER

Choose colors carefully. Note the following general guidelines:

- - Black tends to be more formal, neat, rich, strong
- - Blue is cool, melancholy
- - Purple is considered royal, rich
- - Yellow tends to be warm, light, or ripe
- - Green is fresh, young, or growing
- - White means clean, and neat
- -Red attracts the eye, is high energy
- - Orange attracts the eye

TIPS TO REMEMBER

- Don't try to include too many ideas or activities on your poster.
- A single message, clearly illustrated, is more effective

THINGS YOU SHOULD NOT DO

- Cover poster with lamination or other clear covering

(Clear covering is OK if chalk type materials

- Use staples, tacks, or tape
- Use fluorescent posters
- Create a poster that is all words or a poster that is all pictures

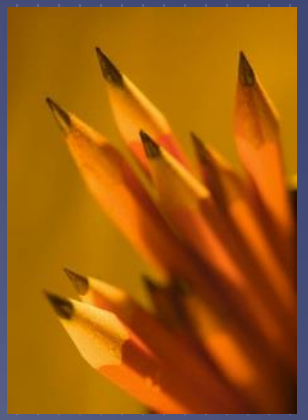
STEPS TO FOLLOW WHEN MAKING A POSTER

- Decide on information to include on the poster
- Research the theme topic
- Sketch out your idea
- Mark guidelines for lettering (lightly)
- Clean up the poster so it is neat. Erase any guidelines that are showing.

STEPS TO FOLLOW WHEN MAKING A POSTER

- Turn poster in on time for judging.
- Attach poster entry form on the back and be sure it is signed by a parent or guardian.
- Entry must be contestant's original, hand done creation and may not be traced from photographs or other artists' published works.

STEPS TO FOLLOW WHEN MAKING A POSTER



- Any media may be used to create a flat (paint, crayon, colored pencil, charcoal, paper or other materials).
- Poster size must be between 8.5" x 11" and 22" x 28". Or the size required by your local or state contest.

WHAT YOUR POSTER WILL BE JUDGED ON

- Conservation message—50 percent
- Visual effectiveness—30 percent
- Originality—10 percent and
- Universal appeal—10 percent.

- Visit
- http://www.nacdnet.org/education/resources/local-heroes

For additional information on

2015 NACD Conservation Education Materials

Teachers guide

Student booklets

In early fall 2014

and more……

http://www.nacdnet.org/education/resources for additional natural resources education materials

Howard County Soil & Water Conservation District

Posters will be picked up February 27th from your school

- Information needed on the back of your posters
  - Your Name
  - Address
  - City
  - School
  - Grade
  - Teacher
  - Parent(s) Name